Biosecurity

Guide for Pork Producers

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Importance of Biosecurity

Preventing the introduction of disease agents is a continuous challenge for pork producers and veterinarians. When a farm or site is affected by disease the impact can be devastating to the health of the swine and the producer's bottom line. If a foreign animal disease were to overcome the biosecurity safeguards we have placed on our farms and our country, it would have a devastating effect on all pork producers.

To protect their own interests and those of their colleagues, producers need to initiate an appropriate level of biosecurity on their farms. A good biosecurity program helps to lower the risk of pathogens being transferred from farm to farm.

The following guide will help producers evaluate their farms by identifying biosecurity strengths and weaknesses. A plan should be developed to address areas that need improvement.

This guide is intended to encompass most biosecurity considerations. Obviously, some of these recommendations will not be applicable to all farms. Producers should use the guide to review their operation and determine where risks for pathogen introduction exist. This checklist is intended to be an educational tool that individual producers can use to understand risks and improve biosecurity protocols if at all feasible.

How to Use This Guide

Simply circle the responses that best fit your current biosecurity practices or situation. You will have more than one response in some areas. Each response is rated as Unacceptable, Questionable, Adequate, or Excellent.

Remember that your entire biosecurity program is only as good as its weakest point. Therefore, if you have one "Unacceptable" response, your herd is at risk for the introduction of a new pathogen even if the rest of the responses were "Excellent".

There may be situations or practices identified in this guide as "Questionable" that are not within the producer's control or cannot be changed. The purpose is to make producers aware of these additional risks and promote more cautious behavior to prevent pathogen introduction.

Additionally, we can only base our biosecurity recommendations on current knowledge. As our knowledge base increases, biosecurity recommendations will change. Moreover, there is always the risk of new, emerging diseases entering our country that may circumvent our current biosecurity recommendations. As the disease status of a country changes, so does its biosecurity protocols. Consequently, even if producers scored "Excellent" in all checklist categories today, they still might be at risk of pathogen introduction tomorrow. This guide offers concepts to reduce the risk of pathogen introduction based on current knowledge and the current disease status of our nation.

Terminology

- **Unacceptable** – Based on current knowledge, your herd is at an extremely high risk of a new pathogen introduction.
- **Questionable** – Based on current knowledge, your herd is most likely at risk for the introduction of a new pathogen depending on your situation. Consultation with a veterinarian is highly recommended to determine if your biosecurity protocols in these areas should be changed to better protect your herd.
- **Adequate** – Based on current knowledge, your herd has logical biosecurity practices in place to prevent a new pathogen introduction. However, there is room for improvement and you may consider consultation with a veterinarian to review these areas and assess the value of making changes to further safeguard your herd.
- **Excellent** – Based on current knowledge, your biosecurity situation and practices are outstanding in these areas and you are at low risk of introducing a new pathogen into your herd.

These checklists were originally created by Dr. Morgan Morrow of North Carolina State University. They were reviewed, and revised by the National Pork Board / American Association of Swine Veterinarians (AASV) Biosecurity Working Group, the National Pork Board Swine Health Committee, the AASV Swine Heath Committee, and Dr. Sandy Amass, Director of the National Biosecurity Resource Center at Purdue University.

Biosecurity Guide for Producers

Isolation Biosecurity

The greatest risk of pathogen introduction to a herd is bringing in infected stock. Direct contact between infected and susceptible pigs is the most efficient way to spread disease. Isolation of incoming stock provides a safeguard against such transmission. Isolation allows time for the producer to observe new stock for signs of disease before herd entry. Isolation also gives the producer the opportunity to test animals for infection with certain pathogens and to acclimate or vaccinate incoming replacement stock against current herd diseases. Failure to isolate new stock offers the greatest risk of pathogen introduction to your herd.

1. Do you use an isolation facility for incoming replacement breeding stock? ____Yes ____No

a. If you answered no to 1., are all replacements produced and grown within the breeding facility? ____Yes ____No

i. If you answered yes to 1.a, disregard the remainder of this section and go to the Indirect Spread section.

ii. If you answered no to both 1. and 1.a, your isolation procedures are unacceptable and you are at very high risk for introduction of a new pathogen into your herd. Please use the rest of this questionnaire as a guide to develop an effective isolation facility to protect your herd.

b. If you answered yes to 1., continue with the remainder of this questionnaire.

2. Is the isolation facility located…

a. Less than 300 yards from any other swine? _____Questionable
b. Greater than 300 yards from any other swine? _____Adequate
c. Greater than 2 miles from any other swine? _____Excellent

3. Is the isolation facility…

a. Completely outdoors/open? _____Questionable
b. Indoor/Outdoor? _____Questionable
c. Totally enclosed (100% confinement)? _____Excellent

4. Is pig flow through the isolation facility…

a. Continuous flow? _____Unacceptable
b. All-in/All-out without cleaning between groups? _____Questionable
c. All-in/All-out with cleaning, disinfection, and downtime between groups? _____Excellent

5. Is the duration of isolation…

a. Less than 30 days? _____Unacceptable
b. 30-60 days? _____Adequate
c. 60 days or more? _____Excellent

6. Do people caring for the replacements in isolation:

a. Go back and forth to farms not associated with the system? _____Unacceptable
b. Go back and forth to farms within the system? _____Unacceptable
c. Attend, then shower and change outerwear prior to returning to the system? _Questionable
d. Attend last thing of the day and work within the system the next day following a shower, change of clothes, and overnight no contact? _____Adequate
e. Work only in isolation, no other contact with pigs? _____Excellent

7. Considering health communications concerning the replacements in isolation:

a. No communication with source herd veterinarian _____Unacceptable
b. Periodic communication from source herd veterinarian _____Questionable
c. Pre-shipment communication from source herd veterinarian _____Adequate
d. Continued update of source herd health status to recipient herd veterinarian _____Excellent
e. Recipient herd veterinarian communicates with source herd veterinarian prior to shipment of replacements and prior to entry of replacements into the breeding herd _____Excellent

8. Health monitoring of replacements in isolation includes:

a. Blood testing only _____Questionable
b. Monitoring clinical signs of disease only _____Questionable
c. A combination of blood testing and monitoring of clinical signs _____Adequate
d. A combination of blood testing, monitoring of clinical signs, and monitoring of sentinel pigs during acclimation _____Excellent
e. Not routinely submitting sick or dead pigs from isolation for diagnostic work-up _____Questionable

9. When blood testing animals in isolation for known pathogens of concern:

a. No animals are tested in isolation _____Unacceptable
b. A few animals are tested in isolation _____Unacceptable
c. A statistical sample of all animals are tested in isolation _____Adequate
d. All animals are tested in isolation _____Excellent

10. Animals are blood tested in isolation:

a. Only on arrival _____Unacceptable
b. Once around 14 days post-arrival _____Questionable
c. Once just prior to entry into the breeding herd following a minimum of 30 day isolation _____Adequate
d. 14 days post-arrival and again just prior to entry into the breeding herd following a minimum of 30 days isolation _____Excellent

Note: Consult with your veterinarian concerning coordination of blood testing and vaccination to avoid confounding results.

11. Considering isolation test results and interpretation:

a. Test results are often confirmed only by a phone communication _____Questionable
b. Test results are always confirmed via a paper or electronic communication _____Excellent
c. Replacements are moved into the herd before availability of test results _____Unacceptable
d. Replacements are moved into the herd before veterinarian interpretation of test results _____Questionable
e. Replacements are not moved into the herd until veterinarian interpretation of test results _____Excellent
f. Acclimation procedures have been developed with a veterinarian and these procedures are followed prior to movement of replacements into the herd _____Excellent

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Indirect Spread

1. Location

a. Considering the proximity of your herd site to the nearest unrelated swine operation:
   i. Less than 300 yards _____ Questionable
   ii. 300 yards to less than 2 miles _____ Adequate
   iii. Two miles or greater _____ Excellent

b. Considering the proximity of your herd site to a public road:
   i. Less than 200 yards _____ Questionable
   ii. 200 to 500 yards _____ Adequate
   iii. Greater than 500 yards _____ Excellent

Aerosol transmission of organisms for 2 miles or more has been described for *Mycoplasma hyopneumoniae*, pseudorabies virus, and foot-and-mouth disease virus. Ideally, groups of pigs could be sited greater than 2 miles apart from each other. Otherwise, siting buildings far enough apart that it is inconvenient to move people, equipment, or animals will help decrease spread of pathogens.

2. Access deterrents

a. No biosecurity or information signs at entrance _____ Questionable
b. No perimeter fence or gated driveway _____ Questionable
c. No perimeter fence; driveway is gated and not locked _____ Questionable
d. No perimeter fence; driveway is gated and locked _____ Adequate
e. Buildings are secured with locks _____ Adequate
f. An occupied dwelling exists on the site _____ Excellent
g. Perimeter fence exists and driveway is gated and locked _____ Excellent

3. Pest / Wildlife control programs

a. No pest control program _____ Unacceptable
b. Pest control program maintained by producer _____ Adequate
c. Professional biosecure pest control program _____ Excellent
d. Excessive debris and vegetation inside perimeter _____ Unacceptable
e. Birds have access to pigs or feed in confinement unit _____ Unacceptable
f. Dogs, cats, or wildlife have access to pigs and feed in confinement unit _____ Unacceptable
g. Feed spills are cleaned up immediately _____ Excellent

Rodents, feral animals, and birds can be sources of pathogens for pigs. Rodents can carry the agents that cause atrophic rhinitis, *E. coli* scours, Leptospirosis, rotaviral diarrhea, Salmonellosis, and swine dysentery. Dogs can spread swine dysentery and brucellosis pathogens. Wild animals can harbor brucellosis, leptospirosis, and pseudorabies. Birds can carry *Bordetella* and tuberculosis. There is also evidence that birds can transmit the viruses that cause classical swine fever, PRRS, influenza, and TGE to swine. Cats are a potential source of toxoplasmosis to pigs.

Note: Outdoor production units or production units with outdoor exposure cannot always control bird, dog, cat, rodent, or wildlife access to pigs or feed. Depending on location, producers with outdoor facilities should be aware of the need to be more cautious and more observant.

4. Feed

a. Feed or feed ingredients are produced and delivered from a mill servicing other swine farms:
   i. Feed is delivered to your site on the same load as other swine deliveries ___Questionable
   ii. Feed truck is dirty on arrival (either inside cab or externally) and enters farm site _____Questionable
   iii. Driver wears coveralls and clean boots to each delivery _____Adequate
   iv. Driver enters swine facilities during deliveries _____Unacceptable
   v. Feed truck remains outside of perimeter fence and driver does not enter farm _____Excellent
b. Feed is produced internally and delivered with a dedicated truck _____Excellent
c. Source of ingredients (corn, meat and bone meal, fish meal) is known _____Excellent
d. Feed mill follows adequate biosecurity and quality control procedures _____Excellent

Note: Producer and the producer's veterinarian should tour the feed mill servicing the facility to assess biosecurity risk at the mill.

5. Transportation

a. If the unit has its own dedicated truck/trailer:
   i. The truck/trailer is not routinely washed and disinfected _____Unacceptable
   ii. The truck/trailer is washed and disinfected only after slaughter or cull load delivery _____Questionable
   iii. The truck/trailer is washed, disinfected, and allowed to dry after every load _____Excellent
b. If the unit hires contract haulers:
   i. The truck/trailer is not washed, disinfected, and allowed to dry after each load _____Unacceptable
   ii. The truck/trailer is not inspected by the producer prior to loading pigs _____Unacceptable
   iii. Producer inspects the truck/trailer prior to loading of pigs _____Adequate
   iv. Producer inspects the truck/trailer for cleanliness prior to access to the site _____Excellent
   v. The driver uses dirty coveralls and boots for each load _____Unacceptable
   vi. The driver uses clean coveralls and boots for each load _____Adequate
   vii. The driver enters the facility to help load the pigs _____Unacceptable
   viii. During loading pigs occasionally run off the truck back into the facility ____Unacceptable
   ix. The truck/trailer has a downtime after cleaning and disinfection when hauling pigs from another source _____Excellent
   x. Farm has an offsite transfer facility _____Excellent

Vehicles can potentially transmit swine pathogens when manure containing disease agents is adhered to tires or the vehicle frame. There is evidence that *Actinobacillus pleuropneumoniae*, TGE, and *Streptococcus suis* can be spread by contaminated vehicles.

Note: Producers should reject dirty trucks/trailers and require them to be washed, disinfected, and allowed to dry prior to loading pigs.

6. Purchased or delivered semen (for natural mating boars or heat detection boars - see Isolation Biosecurity section)

a. Semen is purchased/delivered from a boar stud of unknown health status _____Unacceptable
b. Semen is purchased/delivered from a boar stud with unknown biosecurity protocols _____Unacceptable
c. Semen is purchased/delivered from a boar stud following initial communication between stud veterinarian and herd veterinarian _____Questionable
d. Semen is purchased/delivered from a boar stud whose veterinarian continually communicates health and biosecurity information to your herd veterinarian _____Adequate

Parvovirus, PRRS virus, *Brucella*, pseudorabies virus, and many other disease agents have been isolated from semen of infected boars.

7. Employee concerns

a. Employees have routine contact with other swine farms or pigs _____Unacceptable
b. Following contact with other swine farms or pigs, employees have a "down time" requirement before re-entering the farm (If international contact, observe appropriate time for diseases present in countries they visited and the risk of potential human transmission of these diseases to pigs) _____Excellent
c. Employees are allowed to bring international food products to the farm _____Unacceptable
d. Employees are educated not to bring international food products to the farm _____Excellent

Foot-and-mouth disease and influenza viruses can be potentially transmitted from people to swine. People wearing clothing or boots contaminated with manure from sick animals can also be a source of pathogens.

8. Visitor concerns

a. "No Visitor" policy for non-service visitors _____Excellent
b. Visitors wear clothing they have brought with them _____Unacceptable
c. Visitors must wash hands and arms and wear farm clothing _____Adequate
d. Visitors must shower-in, shower-out and wear farm clothing _____Adequate
e. Visitors must shower-in, shower, out, wear farm clothing and have “down time” (If international visitors, observe appropriate time for diseases present in countries they are from and the risk of potential human transmission of these diseases to pigs) _____Excellent
f. Visitor logs are kept, visitors must sign-in _____Excellent
g. Visitors must park vehicles in a designated area _____Adequate
h. Visitors are not allowed to bring vehicles inside perimeter fence _____Excellent

9. Tools and equipment

a. Tools and equipment are brought to the farm without cleaning and disinfection _____ Questionable
b. All tools are cleaned and disinfected before being brought to the farm _____ Adequate
c. All tools are cleaned and disinfected when moving between farm buildings ____ Adequate
d. Tools and equipment are cleaned and disinfected before they leave the farm __ Excellent
e. Farm maintains its own sets of tools for repairs as much as possible _____ Excellent

10. Carcass removal

a. Carcasses are disposed of in a timely manner according to state regulations ____ Excellent
b. Carcasses are kept in an enclosure that prevents access by dogs, cats, or wildlife _____ Adequate
c. Dead stock transporter observes all trucking biosecurity protocols _____ Excellent
d. If rendering is used, the rendering truck picks up carcasses on site _____ Unacceptable
e. If rendering is used, the rendering truck picks up carcasses at the entrance gate _____ Questionable
f. If rendering is used, the rendering truck picks up carcasses off site _____ Adequate
g. Farm equipment used to haul carcasses is not cleaned and disinfected prior to reentering the farm _____ Questionable
h. Employees wear coveralls and boots designated only for hauling deads and do not return to the farm until they have washed their hands, arms (or showered), and are wearing clean clothing and boots _____ Excellent

11. Cleaning and disinfection

a. Rooms are cleaned, disinfected, and disinfectant allowed to dry before pigs are moved in _____ Excellent
b. Ceiling, walls, flooring, and equipment are all cleaned and disinfected between groups of pigs _____ Excellent
c. Soap and hot water are used to remove all visible organic material before disinfectant is applied _____ Excellent
d. Disinfectants are selected at random _____ Unacceptable
e. Disinfectants are selected based on label claims _____ Questionable
f. Disinfectants are selected based on label claims and veterinarian recommendation _____ Adequate
g. Disinfectants have been tested for effectiveness _____ Excellent

The key to proper cleaning and disinfection is to first remove all visible manure from the room and equipment within that room. Hot water and detergents can make this job easier. Disinfection should occur only after all visible manure has been removed. Manure and urine can interfere with the efficacy of disinfectants. The diseases on your farm and the hardness of your water can also affect disinfectant efficacy. Paying attention to label claims for dilution and contact times and working with your veterinarian to check which disinfectant will work best in your situation and will help optimize disinfectant efficacy on your farm.

12. Building Entryways

a. Entryways are never cleaned and disinfected _____Unacceptable
b. Entryways are routinely cleaned and disinfected _____Adequate
c. Entryways are routinely cleaned, disinfected, and always kept dry _____Excellent

13. Supply and Product Deliveries

a. Delivery person observes all trucking and visitor biosecurity protocols _____Excellent
b. Delivery person sets packages on the entryway floor _____Unacceptable
c. Delivery person sets packages in a designated location off of the floor _____Adequate
d. Supplies and products are initially delivered to a supply room away from the animal facility _____Excellent

For additional biosecurity information, visit www.biosecuritycenter.org and the Science and Technology area of www.porkboard.org.

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National Pork Board

P.O. Box 9114 • Des Moines, Iowa 50306 USA
Phone: (515) 223-2600 • **Fax:** (515) 223-2646
E-Mail: porkboard@porkboard.org
www.porkboard.org

American Association of Swine Veterinarians

902 1ST Street • Perry, Iowa 50220 USA
Phone: (515) 465-5255 • **Fax:** (515) 465-3832
E-Mail: aasv@netins.net
www.aasv.org

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